



SEQUENCE LISTING

<110> Gennaro, Maria L.

<120> PROTEINS EXPRESSED BY MYCOBACTERIUM
TUBERCULOSIS AND NOT BY BCG AND THEIR USE AS DIAGNOSTIC
REAGENTS AND VACCINES

<130> 07763-043001

<140> 10/009,383
<141> 2001-11-02

<150> PCT/US00/12257
<151> 2000-05-04

<150> 60/132,505
<151> 1999-05-04

<160> 16

<170> FastSEQ for Windows Version 4.0

<210> 1
<211> 591
<212> PRT
<213> Mycobacterium tuberculosis

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Gln Leu Gly Thr Ala Glu Ser Arg Ala Tyr Lys Met Trp Leu Pro Pro
20 25 30
Leu Thr Asn Pro Val Pro Leu Asn Glu Leu Ile Ala Arg Asp Arg Arg
35 40 45
Gln Pro Leu Arg Phe Ala Leu Gly Ile Met Asp Glu Pro Arg Arg His
50 55 60
Leu Gln Asp Val Trp Gly Val Asp Val Ser Gly Ala Gly Gly Asn Ile
65 70 75 80
Gly Ile Gly Gly Ala Pro Gln Thr Gly Lys Ser Thr Leu Leu Gln Thr
85 90 95
Met Val Met Ser Ala Ala Ala Thr His Ser Pro Arg Asn Val Gln Phe
100 105 110
Tyr Cys Ile Asp Leu Gly Gly Gly Leu Ile Tyr Leu Glu Asn Leu
115 120 125
Pro His Val Gly Gly Val Ala Asn Arg Ser Glu Pro Asp Lys Val Asn
130 135 140
Arg Val Val Ala Glu Met Gln Ala Val Met Arg Gln Arg Glu Thr Thr
145 150 155 160
Phe Lys Glu His Arg Val Gly Ser Ile Gly Met Tyr Arg Gln Leu Arg
165 170 175
Asp Asp Pro Ser Gln Pro Val Ala Ser Asp Pro Tyr Gly Asp Val Phe
180 185 190
Leu Ile Ile Asp Gly Trp Pro Gly Phe Val Gly Glu Phe Pro Asp Leu
195 200 205
Glu Gly Gln Val Gln Asp Leu Ala Ala Gln Gly Leu Ala Phe Gly Val

210	215	220
His Val Ile Ile Ser Thr Pro Arg Trp Thr Glu Leu Lys Ser Arg Val		
225	230	235
Arg Asp Tyr Leu Gly Thr Lys Ile Glu Phe Arg Leu Gly Asp Val Asn		240
245	250	255
Glu Thr Gln Ile Asp Arg Ile Thr Arg Glu Ile Pro Ala Asn Arg Pro		
260	265	270
Gly Arg Ala Val Ser Met Glu Lys His His Leu Met Ile Gly Val Pro		
275	280	285
Arg Phe Asp Gly Val His Ser Ala Asp Asn Leu Val Glu Ala Ile Thr		
290	295	300
Ala Gly Val Thr Gln Ile Ala Ser Gln His Thr Glu Gln Ala Pro Pro		
305	310	315
Val Arg Val Leu Pro Glu Arg Ile His Leu His Glu Leu Asp Pro Asn		320
325	330	335
Pro Pro Gly Pro Glu Ser Asp Tyr Arg Thr Arg Trp Glu Ile Pro Ile		
340	345	350
Gly Leu Arg Glu Thr Asp Leu Thr Pro Ala His Cys His Met His Thr		
355	360	365
Asn Pro His Leu Leu Ile Phe Gly Ala Ala Lys Ser Gly Lys Thr Thr		
370	375	380
Ile Ala His Ala Ile Ala Arg Ala Ile Cys Ala Arg Asn Ser Pro Gln		
385	390	395
Gln Val Arg Phe Met Leu Ala Asp Tyr Arg Ser Gly Leu Leu Asp Ala		400
405	410	415
Val Pro Asp Thr His Leu Leu Gly Ala Gly Ala Ile Asn Arg Asn Ser		
420	425	430
Ala Ser Leu Asp Glu Ala Val Gln Ala Leu Ala Val Asn Leu Lys Lys		
435	440	445
Arg Leu Pro Pro Thr Asp Leu Thr Thr Ala Gln Leu Arg Ser Arg Ser		
450	455	460
Trp Trp Ser Gly Phe Asp Val Val Leu Leu Val Asp Asp Trp His Met		
465	470	475
Ile Val Gly Ala Ala Gly Gly Met Pro Pro Met Ala Pro Leu Ala Pro		480
485	490	495
Leu Leu Pro Ala Ala Ala Asp Ile Gly Leu His Ile Ile Val Thr Cys		
500	505	510
Gln Met Ser Gln Ala Tyr Lys Ala Thr Met Asp Lys Phe Val Gly Ala		
515	520	525
Ala Phe Gly Ser Gly Ala Pro Thr Met Phe Leu Ser Gly Glu Lys Gln		
530	535	540
Glu Phe Pro Ser Ser Glu Phe Lys Val Lys Arg Arg Pro Pro Gly Gln		
545	550	555
Ala Phe Leu Val Ser Pro Asp Gly Lys Glu Val Ile Gln Ala Pro Tyr		560
565	570	575
Ile Glu Pro Pro Glu Glu Val Phe Ala Ala Pro Pro Ser Ala Gly		
580	585	590

<210> 2
<211> 99
<212> PRT
<213> Mycobacterium tuberculosis

<400> 2
Met Glu Lys Met Ser His Asp Pro Ile Ala Ala Asp Ile Gly Thr Gln
1 5 10 15
Val Ser Asp Asn Ala Leu His Gly Val Thr Ala Gly Ser Thr Ala Leu

	20		25		30	
Thr Ser Val Thr Gly Leu Val Pro Ala Gly Ala Asp Glu Val Ser Ala						
35			40		45	
Gln Ala Ala Thr Ala Phe Thr Ser Glu Gly Ile Gln Leu Leu Ala Ser						
50			55		60	
Asn Ala Ser Ala Gln Asp Gln Leu His Arg Ala Gly Glu Ala Val Gln						
65			70		75	80
Asp Val Ala Arg Thr Tyr Ser Gln Ile Asp Asp Gly Ala Ala Gly Val						
	85		90		95	
Phe Ala Glu						

<210> 3
<211> 368
<212> PRT
<213> Mycobacterium tuberculosis

	<400> 3					
Met Leu Trp His Ala Met Pro Pro Glu Leu Asn Thr Ala Arg Leu Met						
1	5		10		15	
Ala Gly Ala Gly Pro Ala Pro Met Leu Ala Ala Ala Gly Trp Gln						
20			25		30	
Thr Leu Ser Ala Ala Leu Asp Ala Gln Ala Val Glu Leu Thr Ala Arg						
35			40		45	
Leu Asn Ser Leu Gly Glu Ala Trp Thr Gly Gly Ser Asp Lys Ala						
50			55		60	
Leu Ala Ala Ala Thr Pro Met Val Val Trp Leu Gln Thr Ala Ser Thr						
65			70		75	80
Gln Ala Lys Thr Arg Ala Met Gln Ala Thr Ala Gln Ala Ala Tyr						
85			90		95	
Thr Gln Ala Met Ala Thr Thr Pro Ser Leu Pro Glu Ile Ala Ala Asn						
100			105		110	
His Ile Thr Gln Ala Val Leu Thr Ala Thr Asn Phe Phe Gly Ile Asn						
115			120		125	
Thr Ile Pro Ile Ala Leu Thr Glu Met Asp Tyr Phe Ile Arg Met Trp						
130			135		140	
Asn Gln Ala Ala Leu Ala Met Glu Val Tyr Gln Ala Glu Thr Ala Val						
145			150		155	160
Asn Thr Leu Phe Glu Lys Leu Glu Pro Met Ala Ser Ile Leu Asp Pro						
165			170		175	
Gly Ala Ser Gln Ser Thr Thr Asn Pro Ile Phe Gly Met Pro Ser Pro						
180			185		190	
Gly Ser Ser Thr Pro Val Gly Gln Leu Pro Pro Ala Ala Thr Gln Thr						
195			200		205	
Leu Gly Gln Leu Gly Glu Met Ser Gly Pro Met Gln Gln Leu Thr Gln						
210			215		220	
Pro Leu Gln Gln Val Thr Ser Leu Phe Ser Gln Val Gly Gly Thr Gly						
225			230		235	240
Gly Gly Asn Pro Ala Asp Glu Glu Ala Ala Gln Met Gly Leu Leu Gly						
245			250		255	
Thr Ser Pro Leu Ser Asn His Pro Leu Ala Gly Gly Ser Gly Pro Ser						
260			265		270	
Ala Gly Ala Gly Leu Leu Arg Ala Glu Ser Leu Pro Gly Ala Gly Gly						
275			280		285	
Ser Leu Thr Arg Thr Pro Leu Met Ser Gln Leu Ile Glu Lys Pro Val						
290			295		300	
Ala Pro Ser Val Met Pro Ala Ala Ala Gly Ser Ser Ala Thr Gly						

305	310	315	320
Gly Ala Ala Pro Val Gly Ala Gly Ala Met	Gly Gln Gly Ala Gln Ser		
325	330	335	
Gly Gly Ser Thr Arg Pro Gly Leu Val Ala Pro Ala Pro	Leu Ala Gln		
340	345	350	
Glu Arg Glu Glu Asp Asp Glu Asp Asp Trp Asp	Glu Glu Asp Asp Trp		
355	360	365	

<210> 4
<211> 100
<212> PRT
<213> Mycobacterium tuberculosis

<400> 4

Met Ala Glu Met Lys Thr Asp Ala Ala Thr	Leu Ala Gln Glu Ala Gly		
1	5	10	15
Asn Phe Glu Arg Ile Ser Gly Asp	Leu Lys Thr Gln Ile Asp Gln Val		
20	25	30	
Glu Ser Thr Ala Gly Ser	Leu Gln Gly Gln Trp Arg Gly Ala Ala Gly		
35	40	45	
Thr Ala Ala Gln Ala Ala Val Val Arg	Phe Gln Glu Ala Ala Asn Lys		
50	55	60	
Gln Lys Gln Glu Leu Asp	Glu Ile Ser Thr Asn Ile Arg Gln Ala Gly		
65	70	75	80
Val Gln Tyr Ser Arg Ala Asp Glu Glu	Gln Gln Gln Ala Leu Ser Ser		
85	90	95	
Gln Met Gly Phe			
100			

<210> 5
<211> 666
<212> PRT
<213> Mycobacterium tuberculosis

<400> 5

Met Ala Ala Asp Tyr Asp Lys Leu Phe Arg Pro His	Glu Gly Met Glu		
1	5	10	15
Ala Pro Asp Asp Met Ala Ala Gln Pro Phe Phe Asp	Pro Ser Ala Ser		
20	25	30	
Phe Pro Pro Ala Pro Ala Ser Ala Asn Leu Pro	Lys Pro Asn Gly Gln		
35	40	45	
Thr Pro Pro Pro Thr Ser Asp Asp Leu Ser Glu Arg	Phe Val Ser Ala		
50	55	60	
Pro	Pro Pro Pro Thr Pro Met		
65	70	75	80
Pro Ile Ala Ala Gly Glu Pro Pro Ser Pro	Glu Pro Ala Ala Ser Lys		
85	90	95	
Pro Pro Thr Pro Pro Met Pro Ile Ala Gly	Pro Glu Pro Ala Pro Pro		
100	105	110	
Lys Pro Pro Thr Pro Pro Met Pro Ile Ala Gly	Pro Glu Pro Ala Pro		
115	120	125	
Pro Lys Pro Pro Thr Pro Pro Met Pro Ile Ala Gly	Pro Ala Pro Thr		
130	135	140	
Pro Thr Glu Ser Gln Leu Ala Pro Pro Arg	Pro Pro Thr Pro Gln Thr		
145	150	155	160
Pro Thr Gly Ala Pro Gln Gln Pro Glu Ser	Pro Pro Ala Pro His Val Pro		
165	170	175	

Ser His Gly Pro His Gln Pro Arg Arg Thr Ala Pro Ala Pro Pro Trp
 180 185 190
 Ala Lys Met Pro Ile Gly Glu Pro Pro Pro Ala Pro Ser Arg Pro Ser
 195 200 205
 Ala Ser Pro Ala Glu Pro Pro Thr Arg Pro Ala Pro Gln His Ser Arg
 210 215 220
 Arg Ala Arg Arg Gly His Arg Tyr Arg Thr Asp Thr Glu Arg Asn Val
 225 230 235 240
 Gly Lys Val Ala Thr Gly Pro Ser Ile Gln Ala Arg Leu Arg Ala Glu
 245 250 255
 Glu Ala Ser Gly Ala Gln Leu Ala Pro Gly Thr Glu Pro Ser Pro Ala
 260 265 270
 Pro Leu Gly Gln Pro Arg Ser Tyr Leu Ala Pro Pro Thr Arg Pro Ala
 275 280 285
 Pro Thr Glu Pro Pro Pro Ser Pro Ser Pro Gln Arg Asn Ser Gly Arg
 290 295 300
 Arg Ala Glu Arg Arg Val His Pro Asp Leu Ala Ala Gln His Ala Ala
 305 310 315 320
 Ala Gln Pro Asp Ser Ile Thr Ala Ala Thr Thr Gly Gly Arg Arg Arg
 325 330 335
 Lys Arg Ala Ala Pro Asp Leu Asp Ala Thr Gln Lys Ser Leu Arg Pro
 340 345 350
 Ala Ala Lys Gly Pro Lys Val Lys Lys Val Lys Pro Gln Lys Pro Lys
 355 360 365
 Ala Thr Lys Pro Pro Lys Val Val Ser Gln Arg Gly Trp Arg His Trp
 370 375 380
 Val His Ala Leu Thr Arg Ile Asn Leu Gly Leu Ser Pro Asp Glu Lys
 385 390 395 400
 Tyr Glu Leu Asp Leu His Ala Arg Val Arg Arg Asn Pro Arg Gly Ser
 405 410 415
 Tyr Gln Ile Ala Val Val Gly Leu Lys Gly Gly Ala Gly Lys Thr Thr
 420 425 430
 Leu Thr Ala Ala Leu Gly Ser Thr Leu Ala Gln Val Arg Ala Asp Arg
 435 440 445
 Ile Leu Ala Leu Asp Ala Asp Pro Gly Ala Gly Asn Leu Ala Asp Arg
 450 455 460
 Val Gly Arg Gln Ser Gly Ala Thr Ile Ala Asp Val Leu Ala Glu Lys
 465 470 475 480
 Glu Leu Ser His Tyr Asn Asp Ile Arg Ala His Thr Ser Val Asn Ala
 485 490 495
 Val Asn Leu Glu Val Leu Pro Ala Pro Glu Tyr Ser Ser Ala Gln Arg
 500 505 510
 Ala Leu Ser Asp Ala Asp Trp His Phe Ile Ala Asp Pro Ala Ser Arg
 515 520 525
 Phe Tyr Asn Leu Val Leu Ala Asp Cys Gly Ala Gly Phe Phe Asp Pro
 530 535 540
 Leu Thr Arg Gly Val Leu Ser Thr Val Ser Gly Val Val Val Val Ala
 545 550 555 560
 Ser Val Ser Ile Asp Gly Ala Gln Gln Ala Ser Val Ala Leu Asp Trp
 565 570 575
 Leu Arg Asn Asn Gly Tyr Gln Asp Leu Ala Ser Arg Ala Cys Val Val
 580 585 590
 Ile Asn His Ile Met Pro Gly Glu Pro Asn Val Ala Val Lys Asp Leu
 595 600 605
 Val Arg His Phe Glu Gln Gln Val Gln Pro Gly Arg Val Val Val Met
 610 615 620
 Pro Trp Asp Arg His Ile Ala Ala Gly Thr Glu Ile Ser Leu Asp Leu

625	630	635	640
Leu Asp Pro Ile Tyr Lys Arg Lys Val	Leu Glu Leu Ala Ala Ala	Leu	
645	650		655
Ser Asp Asp Phe Glu Arg Ala Gly Arg Arg			
660	665		

<210> 6
<211> 511
<212> PRT
<213> Mycobacterium tuberculosis

<400> 6			
Leu Ser Ala Pro Ala Val Ala Ala Gly	Pro Thr Ala Ala Gly	Ala Thr	
1 5	10	15	
Ala Ala Arg Pro Ala Thr Thr Arg Val	Thr Ile Leu Thr Gly Arg Arg		
20	25	30	
Met Thr Asp Leu Val Leu Pro Ala Ala Val	Pro Met Glu Thr Tyr Ile		
35	40	45	
Asp Asp Thr Val Ala Val Leu Ser Glu Val	Leu Glu Asp Thr Pro Ala		
50	55	60	
Asp Val Leu Gly Gly Phe Asp Phe Thr Ala	Gln Gly Val Trp Ala Phe		
65	70	75	80
Ala Arg Pro Gly Ser Pro Pro Leu Lys	Leu Asp Gln Ser Leu Asp Asp		
85	90	95	
Ala Gly Val Val Asp Gly Ser Leu Leu Thr	Leu Val Ser Val Ser Arg		
100	105	110	
Thr Glu Arg Tyr Arg Pro Leu Val Glu Asp Val	Ile Asp Ala Ile Ala		
115	120	125	
Val Leu Asp Glu Ser Pro Glu Phe Asp Arg	Thr Ala Leu Asn Arg Phe		
130	135	140	
Val Gly Ala Ala Ile Pro Leu Leu Thr Ala	Pro Val Ile Gly Met Ala		
145	150	155	160
Met Arg Ala Trp Trp Glu Thr Gly Arg Ser	Leu Trp Trp Pro Leu Ala		
165	170	175	
Ile Gly Ile Leu Gly Ile Ala Val Leu Val	Gly Ser Phe Val Ala Asn		
180	185	190	
Arg Phe Tyr Gln Ser Gly His Leu Ala Glu	Cys Leu Leu Val Thr Thr		
195	200	205	
Tyr Leu Leu Ile Ala Thr Ala Ala Ala Leu	Ala Val Pro Leu Pro Arg		
210	215	220	
Gly Val Asn Ser Leu Gly Ala Pro Gln Val	Ala Gly Ala Ala Thr Ala		
225	230	235	240
Val Leu Phe Leu Thr Leu Met Thr Arg Gly	Gly Pro Arg Lys Arg His		
245	250	255	
Glu Leu Ala Ser Phe Ala Val Ile Thr Ala	Ile Ala Val Ile Ala Ala		
260	265	270	
Ala Ala Ala Phe Gly Tyr Gly Tyr Gln Asp	Trp Val Pro Ala Gly Gly		
275	280	285	
Ile Ala Phe Gly Leu Phe Ile Val Thr Asn	Ala Ala Lys Leu Thr Val		
290	295	300	
Ala Val Ala Arg Ile Ala Leu Pro Pro Ile	Pro Val Pro Gly Glu Thr		
305	310	315	320
Val Asp Asn Glu Glu Leu Leu Asp Pro Val	Ala Thr Pro Glu Ala Thr		
325	330	335	
Ser Glu Glu Thr Pro Thr Trp Gln Ala Ile	Ile Ala Ser Val Pro Ala		
340	345	350	
Ser Ala Val Arg Leu Thr Glu Arg Ser Lys	Leu Ala Lys Gln Leu Leu		

355	360	365
Ile Gly Tyr Val Thr Ser Gly Thr Leu Ile Leu Ala Ala Gly Ala Ile		
370	375	380
Ala Val Val Val Arg Gly His Phe Phe Val His Ser Leu Val Val Ala		
385	390	395
Gly Leu Ile Thr Thr Val Cys Gly Phe Arg Ser Arg Leu Tyr Ala Glu		
405	410	415
Arg Trp Cys Ala Trp Ala Leu Leu Ala Ala Thr Val Ala Ile Pro Thr		
420	425	430
Gly Leu Thr Ala Lys Leu Ile Ile Trp Tyr Pro His Tyr Ala Trp Leu		
435	440	445
Leu Leu Ser Val Tyr Leu Thr Val Ala Leu Val Ala Leu Val Val Val		
450	455	460
Gly Ser Met Ala His Val Arg Arg Val Ser Pro Val Val Lys Arg Thr		
465	470	475
Leu Glu Leu Ile Asp Gly Ala Met Ile Ala Ala Ile Ile Pro Met Leu		
485	490	495
Leu Trp Ile Thr Gly Val Tyr Asp Thr Val Arg Asn Ile Arg Phe		
500	505	510

<210> 7
<211> 280
<212> PRT
<213> Mycobacterium tuberculosis

<400> 7		
Met Ala Glu Pro Leu Ala Val Asp Pro Thr Gly Leu Ser Ala Ala Ala		
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Ala Lys Leu Ala Gly Leu Val Phe Pro Gln Pro Pro Ala Pro Ile Ala		
20	25	30
Val Ser Gly Thr Asp Ser Val Val Ala Ala Ile Asn Glu Thr Met Pro		
35	40	45
Ser Ile Glu Ser Leu Val Ser Asp Gly Leu Pro Gly Val Lys Ala Ala		
50	55	60
Leu Thr Arg Thr Ala Ser Asn Met Asn Ala Ala Ala Asp Val Tyr Ala		
65	70	75
Lys Thr Asp Gln Ser Leu Gly Thr Ser Leu Ser Gln Tyr Ala Phe Gly		
85	90	95
Ser Ser Gly Glu Gly Leu Ala Gly Val Ala Ser Val Gly Gly Gln Pro		
100	105	110
Ser Gln Ala Thr Gln Leu Leu Ser Thr Pro Val Ser Gln Val Thr Thr		
115	120	125
Gln Leu Gly Glu Thr Ala Ala Glu Leu Ala Pro Arg Val Val Ala Thr		
130	135	140
Val Pro Gln Leu Val Gln Leu Ala Pro His Ala Val Gln Met Ser Gln		
145	150	155
Asn Ala Ser Pro Ile Ala Gln Thr Ile Ser Gln Thr Ala Gln Gln Ala		
165	170	175
Ala Gln Ser Ala Gln Gly Gly Ser Gly Pro Met Pro Ala Gln Leu Ala		
180	185	190
Ser Ala Glu Lys Pro Ala Thr Glu Gln Ala Glu Pro Val His Glu Val		
195	200	205
Thr Asn Asp Asp Gln Gly Asp Gln Gly Asp Val Gln Pro Ala Glu Val		
210	215	220
Val Ala Ala Ala Arg Asp Glu Gly Ala Gly Ala Ser Pro Gly Gln Gln		
225	230	235
Pro Gly Gly Val Pro Ala Gln Ala Met Asp Thr Gly Ala Gly Ala		

245	250	255
Arg Pro Ala Ala Ser Pro Leu Ala Ala	Pro Val Asp Pro Ser Thr Pro	
260	265	270
Ala Pro Ser Thr Thr Thr Leu		
275	280	

<210> 8
<211> 729
<212> PRT
<213> Mycobacterium tuberculosis

<400> 8			
Met Ser Ile Thr Arg Pro Thr Gly Ser Tyr Ala Arg Gln Met Leu Asp			
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Pro Gly Gly Trp Val Glu Ala Asp Glu Asp Thr Phe Tyr Asp Arg Ala			
20	25	30	
Gln Glu Tyr Ser Gln Val Leu Gln Arg Val Thr Asp Val Leu Asp Thr			
35	40	45	
Cys Arg Gln Gln Lys Gly His Val Phe Glu Gly Gly Leu Trp Ser Gly			
50	55	60	
Gly Ala Ala Asn Ala Ala Asn Gly Ala Leu Gly Ala Asn Ile Asn Gln			
65	70	75	80
Leu Met Thr Leu Gln Asp Tyr Leu Ala Thr Val Ile Thr Trp His Arg			
85	90	95	
His Ile Ala Gly Leu Ile Glu Gln Ala Lys Ser Asp Ile Gly Asn Asn			
100	105	110	
Val Asp Gly Ala Gln Arg Glu Ile Asp Ile Leu Glu Asn Asp Pro Ser			
115	120	125	
Leu Asp Ala Asp Glu Arg His Thr Ala Ile Asn Ser Leu Val Thr Ala			
130	135	140	
Thr His Gly Ala Asn Val Ser Leu Val Ala Glu Thr Ala Glu Arg Val			
145	150	155	160
Leu Glu Ser Lys Asn Trp Lys Pro Pro Lys Asn Ala Leu Glu Asp Leu			
165	170	175	
Leu Gln Gln Lys Ser Pro Pro Pro Asp Val Pro Thr Leu Val Val			
180	185	190	
Pro Ser Pro Gly Thr Pro Gly Thr Pro Gly Thr Pro Ile Thr Pro Gly			
195	200	205	
Thr Pro Ile Thr Pro Gly Thr Pro Ile Thr Pro Ile Pro Gly Ala Pro			
210	215	220	
Val Thr Pro Ile Thr Pro Thr Pro Gly Thr Pro Val Thr Pro Val Thr			
225	230	235	240
Pro Gly Lys Pro Val Thr Pro Val Thr Pro Val Lys Pro Gly Thr Pro			
245	250	255	
Gly Glu Pro Thr Pro Ile Thr Pro Val Thr Pro Pro Val Ala Pro Ala			
260	265	270	
Thr Pro Ala Thr Pro Ala Thr Pro Val Thr Pro Ala Pro Ala Pro His			
275	280	285	
Pro Gln Pro Ala Pro Ala Pro Ala Pro Ser Pro Gly Pro Gln Pro Val			
290	295	300	
Thr Pro Ala Thr Pro Gly Pro Ser Gly Pro Ala Thr Pro Gly Thr Pro			
305	310	315	320
Gly Gly Glu Pro Ala Pro His Val Lys Pro Ala Ala Leu Ala Glu Gln			
325	330	335	
Pro Gly Val Pro Gly Gln His Ala Gly Gly Gly Thr Gln Ser Gly Pro			
340	345	350	
Ala His Ala Asp Glu Ser Ala Ala Ser Val Thr Pro Ala Ala Ser			

355	360	365
Gly Val Pro Gly Ala Arg Ala Ala Ala Ala Pro Ser Gly Thr Ala		
370	375	380
Val Gly Ala Gly Ala Arg Ser Ser Val Gly Thr Ala Ala Ala Ser Gly		
385	390	395
Ala Gly Ser His Ala Ala Thr Gly Arg Ala Pro Val Ala Thr Ser Asp		
405	410	415
Lys Ala Ala Ala Pro Ser Thr Arg Ala Ala Ser Ala Arg Thr Ala Pro		
420	425	430
Pro Ala Arg Pro Pro Ser Thr Asp His Ile Asp Lys Pro Asp Arg Ser		
435	440	445
Glu Ser Ala Asp Asp Gly Thr Pro Val Ser Met Ile Pro Val Ser Ala		
450	455	460
Ala Arg Ala Ala Arg Asp Ala Ala Thr Ala Ala Ala Ser Ala Arg Gln		
465	470	475
Arg Gly Arg Gly Asp Ala Leu Arg Leu Ala Arg Arg Ile Ala Ala Ala		
485	490	495
Leu Asn Ala Ser Asp Asn Ala Gly Asp Tyr Gly Phe Phe Trp Ile		
500	505	510
Thr Ala Val Thr Thr Asp Gly Ser Ile Val Val Ala Asn Ser Tyr Gly		
515	520	525
Leu Ala Tyr Ile Pro Asp Gly Met Glu Leu Pro Asn Lys Val Tyr Leu		
530	535	540
Ala Ser Ala Asp His Ala Ile Pro Val Asp Glu Ile Ala Arg Cys Ala		
545	550	555
Thr Tyr Pro Val Leu Ala Val Gln Ala Trp Ala Ala Phe His Asp Met		
565	570	575
Thr Leu Arg Ala Val Ile Gly Thr Ala Glu Gln Leu Ala Ser Ser Asp		
580	585	590
Pro Gly Val Ala Lys Ile Val Leu Glu Pro Asp Asp Ile Pro Glu Ser		
595	600	605
Gly Lys Met Thr Gly Arg Ser Arg Leu Glu Val Val Asp Pro Ser Ala		
610	615	620
Ala Ala Gln Leu Ala Asp Thr Thr Asp Gln Arg Leu Leu Asp Leu Leu		
625	630	635
Pro Pro Ala Pro Val Asp Val Asn Pro Pro Gly Asp Glu Arg His Met		
645	650	655
Leu Trp Phe Glu Leu Met Lys Pro Met Thr Ser Thr Ala Thr Gly Arg		
660	665	670
Glu Ala Ala His Leu Arg Ala Phe Arg Ala Tyr Ala Ala His Ser Gln		
675	680	685
Glu Ile Ala Leu His Gln Ala His Thr Ala Thr Asp Ala Ala Val Gln		
690	695	700
Arg Val Ala Val Ala Asp Trp Leu Tyr Trp Gln Tyr Val Thr Gly Leu		
705	710	715
Leu Asp Arg Ala Leu Ala Ala Cys		
725		

<210> 9
<211> 1776
<212> DNA
<213> Mycobacterium tuberculosis

<220>
<221> CDS
<222> (1)...(1773)

<400> 9				
atg act gct gaa ccg gaa gta cg ^g acg ctg cgc gag gtt gtg ctg gac				48
Met Thr Ala Glu Pro Glu Val Arg Thr Leu Arg Glu Val Val Leu Asp				
1	5	10	15	
cag ctc ggc act gct gaa tcg cgt gc ^g tac aag atg tgg ctg ccg ccg				96
Gln Leu Gly Thr Ala Glu Ser Arg Ala Tyr Lys Met Trp Leu Pro Pro				
20	25	30		
ttg acc aat ccg gtc ccg ctc aac gag ctc atc gcc cgt gat cgg cga				144
Leu Thr Asn Pro Val Pro Leu Asn Glu Leu Ile Ala Arg Asp Arg Arg				
35	40	45		
caa ccc ctg cga ttt gcc ctg ggg atc atg gat gaa ccg cgc cgc cat				192
Gln Pro Leu Arg Phe Ala Leu Gly Ile Met Asp Glu Pro Arg Arg His				
50	55	60		
cta cag gat gtg tgg ggc gta gac gtt tcc ggg gcc ggc aac atc				240
Leu Gln Asp Val Trp Gly Val Asp Val Ser Gly Ala Gly Gly Asn Ile				
65	70	75	80	
ggt att ggg ggc gca cct caa acc ggg aag tcg acg cta ctg cag acg				288
Gly Ile Gly Gly Ala Pro Gln Thr Gly Lys Ser Thr Leu Leu Gln Thr				
85	90	95		
atg gtg atg tcg gcc gcc aca cac tca ccg cgc aac gtt cag ttc				336
Met Val Met Ser Ala Ala Ala Thr His Ser Pro Arg Asn Val Gln Phe				
100	105	110		
tat tgc atc gac cta ggt ggc ggc ggg ctg atc tat ctc gaa aac ctt				384
Tyr Cys Ile Asp Leu Gly Gly Leu Ile Tyr Leu Glu Asn Leu				
115	120	125		
cca cac gtc ggt ggg gta gcc aat cgg tcc gag ccc gac aag gtc aac				432
Pro His Val Gly Gly Val Ala Asn Arg Ser Glu Pro Asp Lys Val Asn				
130	135	140		
cg ^g gtg gtc gca gag atg caa gcc gtc atg cgg caa cgg gaa acc acc				480
Arg Val Val Ala Glu Met Gln Ala Val Met Arg Gln Arg Glu Thr Thr				
145	150	155	160	
ttc aag gaa cac cga gtg ggc tcg atc ggg atg tac cgg cag ctg cgt				528
Phe Lys Glu His Arg Val Gly Ser Ile Gly Met Tyr Arg Gln Leu Arg				
165	170	175		
gac gat cca agt caa ccc gtt gcg tcc gat cca tac ggc gac gtc ttt				576
Asp Asp Pro Ser Gln Pro Val Ala Ser Asp Pro Tyr Gly Asp Val Phe				
180	185	190		
ctg atc atc gac gga tgg ccc ggt ttt gtc ggc gag ttc ccc gac ctt				624
Leu Ile Ile Asp Gly Trp Pro Gly Phe Val Gly Glu Phe Pro Asp Leu				
195	200	205		
gag ggg cag gtt caa gat ctg gcc gcc cag ggg ctg cgc ttc ggc gtc				672
Glu Gly Gln Val Gln Asp Leu Ala Ala Gln Gly Leu Ala Phe Gly Val				
210	215	220		

cac gtc atc atc tcc acg cca cgc tgg aca gag ctg aag tcg cgt gtt His Val Ile Ile Ser Thr Pro Arg Trp Thr Glu Leu Lys Ser Arg Val 225 230 235 240	720
cgc gac tac ctc ggc acc aag atc gag ttc cgg ctt ggt gac gtc aat Arg Asp Tyr Leu Gly Thr Lys Ile Glu Phe Arg Leu Gly Asp Val Asn 245 250 255	768
gaa acc cag atc gac cgg att acc cgc gag atc ccg gcg aat cgt ccg Glu Thr Gln Ile Asp Arg Ile Thr Arg Glu Ile Pro Ala Asn Arg Pro 260 265 270	816
ggt cgg gca gtg tcg atg gaa aag cac cat ctg atg atc ggc gtg ccc Gly Arg Ala Val Ser Met Glu Lys His His Leu Met Ile Gly Val Pro 275 280 285	864
agg ttc gac ggc gtg cac agc gcc gat aac ctg gtg gag gcg atc acc Arg Phe Asp Gly Val His Ser Ala Asp Asn Leu Val Glu Ala Ile Thr 290 295 300	912
gcg ggg gtg acg cag atc gct tcc cag cac acc gaa cag gca cct ccg Ala Gly Val Thr Gln Ile Ala Ser Gln His Thr Glu Gln Ala Pro Pro 305 310 315 320	960
gtg cgg gtc ctg ccg gag cgt atc cac ctg cac gaa ctc gac ccg aac Val Arg Val Leu Pro Glu Arg Ile His Leu His Glu Leu Asp Pro Asn 325 330 335	1008
ccg ccg gga cca gag tcc gac tac cgc act cgc tgg gag att ccg atc Pro Pro Gly Pro Glu Ser Asp Tyr Arg Thr Arg Trp Glu Ile Pro Ile 340 345 350	1056
ggc ttg cgc gag acg gac ctg acg ccg gct cac tgc cac atg cac acg Gly Leu Arg Glu Thr Asp Leu Thr Pro Ala His Cys His Met His Thr 355 360 365	1104
aac ccg cac cta ctg atc ttc ggt gcg gcc aaa tcg ggc aag acg acc Asn Pro His Leu Leu Ile Phe Gly Ala Ala Lys Ser Gly Lys Thr Thr 370 375 380	1152
att gcc cac gcg atc gcg cgc gcc att tgt gcc cga aac agt ccc cag Ile Ala His Ala Ile Ala Arg Ala Ile Cys Ala Arg Asn Ser Pro Gln 385 390 395 400	1200
cag gtg cgg ttc atg ctc gcg gac tac cgc tcg ggc ctg ctg gac gcg Gln Val Arg Phe Met Leu Ala Asp Tyr Arg Ser Gly Leu Leu Asp Ala 405 410 415	1248
gtg ccg gac acc cat ctg ctg ggc gcc ggc gcg atc aac cgc aac acg Val Pro Asp Thr His Leu Leu Gly Ala Gly Ala Ile Asn Arg Asn Ser 420 425 430	1296
gcg tcg cta gac gag gcc gtt caa gca ctg gcg gtc aac ctg aag aag Ala Ser Leu Asp Glu Ala Val Gln Ala Leu Ala Val Asn Leu Lys Lys 435 440 445	1344
cggttgcccgaccgaccgactctgacgacgacgcacgcacgcacgcacgttcg 450	1392

Arg Leu Pro Pro Thr Asp Leu Thr Thr Ala Gln Leu Arg Ser Arg Ser				
450	455	460		
tgg tgg agc gga ttt gac gtc gtg ctt ctg gtc gac gat tgg cac atg				1440
Trp Trp Ser Gly Phe Asp Val Val Leu Leu Val Asp Asp Trp His Met				
465	470	475	480	
atc gtg ggt gcc gcc ggg ggg atg ccg ccg atg gca ccg ctg gcc ccg				1488
Ile Val Gly Ala Ala Gly Gly Met Pro Pro Met Ala Pro Leu Ala Pro				
485	490	495		
tta ttg ccg gcg gcg gca gat atc ggg ttg cac atc att gtc acc tgt				1536
Leu Leu Pro Ala Ala Ala Asp Ile Gly Leu His Ile Ile Val Thr Cys				
500	505	510		
cag atg agc cag gct tac aag gca acc atg gac aag ttc gtc ggc gcc				1584
Gln Met Ser Gln Ala Tyr Lys Ala Thr Met Asp Lys Phe Val Gly Ala				
515	520	525		
gca ttc ggg tcg ggc gct ccg aca atg ttc ctt tcg ggc gag aag cag				1632
Ala Phe Gly Ser Gly Ala Pro Thr Met Phe Leu Ser Gly Glu Lys Gln				
530	535	540		
gaa ttc cca tcc agt gag ttc aag gtc aag ccg cgc ccc cct ggc cag				1680
Glu Phe Pro Ser Ser Glu Phe Lys Val Lys Arg Arg Pro Pro Gly Gln				
545	550	555	560	
gca ttt ctc gtc tcg cca gac ggc aaa gag gtc atc cag gcc ccc tac				1728
Ala Phe Leu Val Ser Pro Asp Gly Lys Glu Val Ile Gln Ala Pro Tyr				
565	570	575		
atc gag cct cca gaa gaa gtg ttc gca gca ccc cca agc gcc ggt				1773
Ile Glu Pro Pro Glu Glu Val Phe Ala Ala Pro Pro Ser Ala Gly				
580	585	590		
taa				1776
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<212> DNA				
<213> Mycobacterium tuberculosis				
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<221> CDS				
<222> (1)...(297)				
<400> 10				
atg gaa aaa atg tca cat gat ccg atc gct gcc gac att ggc acg caa				48
Met Glu Lys Met Ser His Asp Pro Ile Ala Ala Asp Ile Gly Thr Gln				
1	5	10	15	
gtg agc gac aac gct ctg cac ggc gtg acg gcc ggc tcg acg gcg ctg				96
Val Ser Asp Asn Ala Leu His Gly Val Thr Ala Gly Ser Thr Ala Leu				
20	25	30		
acg tcg gtg acc ggg ctg gtt ccc gcg ggg gcc gat gag gtc tcc gcc				144
Thr Ser Val Thr Gly Leu Val Pro Ala Gly Ala Asp Glu Val Ser Ala				

35	40	45	
caa gcg gcg acg gcg ttc aca tcg gag ggc atc caa ttg ctg gct tcc Gln Ala Ala Thr Ala Phe Thr Ser Glu Gly Ile Gln Leu Leu Ala Ser			192
50	55	60	
aat gca tcg gcc caa gac cag ctc cac cgt gcg ggc gaa gcg gtc cag Asn Ala Ser Ala Gln Asp Gln Leu His Arg Ala Gly Glu Ala Val Gln			240
65	70	75	80
gac gtc gcc cgc acc tat tcg caa atc gac gac ggc gcc gcc gtc Asp Val Ala Arg Thr Tyr Ser Gln Ile Asp Asp Gly Ala Ala Gly Val			288
85	90		95
ttc gcc gaa tag Phe Ala Glu			300
<210> 11			
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<212> DNA			
<213> Mycobacterium tuberculosis			
<220>			
<221> CDS			
<222> (1)...(1104)			
<400> 11			
atg ctg tgg cac gca atg cca ccg gag cta aat acc gca cg ^g ctg atg Met Leu Trp His Ala Met Pro Pro Glu Leu Asn Thr Ala Arg Leu Met			48
1	5	10	15
gcc ggc gcg ggt ccg gct cca atg ctt gcg gcg gcc gcg gga tgg cag Ala Gly Ala Gly Pro Ala Pro Met Leu Ala Ala Ala Gly Trp Gln			96
20	25		30
acg ctt tcg gcg gct ctg gac gct cag gcc gtc gag ttg acc gcg cgc Thr Leu Ser Ala Ala Leu Asp Ala Gln Ala Val Glu Leu Thr Ala Arg			144
35	40	45	
ctg aac tct ctg gga gaa gcc tgg act gga ggt ggc agc gac aag gcg Leu Asn Ser Leu Gly Glu Ala Trp Thr Gly Gly Ser Asp Lys Ala			192
50	55	60	
ctt gcg gct gca acg ccg atg gtg gtc tgg cta caa acc gcg tca aca Leu Ala Ala Ala Thr Pro Met Val Val Trp Leu Gln Thr Ala Ser Thr			240
65	70	75	80
cag gcc aag acc cgt gcg atg cag gcg acg gcg caa gcc gcg gca tac Gln Ala Lys Thr Arg Ala Met Gln Ala Thr Ala Gln Ala Ala Ala Tyr			288
85	90	95	
acc cag gcc atg gcc acg ccg tcg ctg ccg gag atc gcc gcc aac Thr Gln Ala Met Ala Thr Thr Pro Ser Leu Pro Glu Ile Ala Ala Asn			336
100	105	110	

cac atc acc cag gcc gtc ctt acg gcc acc aac ttc ttc ggt atc aac His Ile Thr Gln Ala Val Leu Thr Ala Thr Asn Phe Phe Gly Ile Asn 115 120 125	384
acg atc ccg atc gcg ttg acc gag atg gat tat ttc atc cgt atg tgg Thr Ile Pro Ile Ala Leu Thr Glu Met Asp Tyr Phe Ile Arg Met Trp 130 135 140	432
aac cag gca gcc ctg gca atg gag gtc tac cag gcc gag acc gcg gtt Asn Gln Ala Ala Leu Ala Met Glu Val Tyr Gln Ala Glu Thr Ala Val 145 150 155 160	480
aac acg ctt ttc gag aag ctc gag ccg atg gcg tcg atc ctt gat ccc Asn Thr Leu Phe Glu Lys Leu Glu Pro Met Ala Ser Ile Leu Asp Pro 165 170 175	528
ggc gcg agc cag agc acg aac ccg atc ttc gga atg ccc tcc cct Gly Ala Ser Gln Ser Thr Thr Asn Pro Ile Phe Gly Met Pro Ser Pro 180 185 190	576
ggc agc tca aca ccg gtt ggc cag ttg ccg ccg gcg gct acc cag acc Gly Ser Ser Thr Pro Val Gly Gln Leu Pro Pro Ala Ala Thr Gln Thr 195 200 205	624
ctc ggc caa ctg ggt gag atg agc ggc ccg atg cag cag ctg acc cag Leu Gly Gln Leu Gly Glu Met Ser Gly Pro Met Gln Gln Leu Thr Gln 210 215 220	672
ccg ctg cag cag gtg acg tcg ttg ttc agc cag gtg ggc ggc acc ggc Pro Leu Gln Gln Val Thr Ser Leu Phe Ser Gln Val Gly Gly Thr Gly 225 230 235 240	720
ggc ggc aac cca gcc gac gag gaa gcc gcg cag atg ggc ctg ctc ggc Gly Gly Asn Pro Ala Asp Glu Glu Ala Ala Gln Met Gly Leu Leu Gly 245 250 255	768
acc agt ccg ctg tcg aac cat ccg ctg gct ggt gga tca ggc ccc agc Thr Ser Pro Leu Ser Asn His Pro Leu Ala Gly Gly Ser Gly Pro Ser 260 265 270	816
gcf ggc ggc ctg ctg cgc gcg gag tcg cta cct ggc gca ggt ggg Ala Gly Ala Gly Leu Leu Arg Ala Glu Ser Leu Pro Gly Ala Gly Gly 275 280 285	864
tcg ttg acc cgc acg ccg ctg atg tct cag ctg atc gaa aag ccg gtt Ser Leu Thr Arg Thr Pro Leu Met Ser Gln Leu Ile Glu Lys Pro Val 290 295 300	912
gcc ccc tcg gtg atg ccg gcg gct gct gcc gga tcg tcg gcg acg ggt Ala Pro Ser Val Met Pro Ala Ala Ala Gly Ser Ser Ala Thr Gly 305 310 315 320	960
ggc gcc gct ccg gtg ggt gcg gga gcg atg ggc cag ggt gcg caa tcc Gly Ala Ala Pro Val Gly Ala Gly Ala Met Gly Gln Gly Ala Gln Ser 325 330 335	1008
ggc ggc tcc acc agg ccg ggt ctg gtc gcg ccg gca ccc ctc gcg cag	1056

Gly Gly Ser Thr Arg Pro Gly Leu Val Ala Pro Ala Pro Leu Ala Gln
 340 345 350

gag cgt gaa gaa gac gac gag gac gac tgg gac gaa gag gac gac tgg 1104
 Glu Arg Glu Glu Asp Asp Glu Asp Asp Trp Asp Glu Glu Asp Asp Trp
 355 360 365

tga 1107

<210> 12
<211> 303
<212> DNA
<213> Mycobacterium tuberculosis

<220>
<221> CDS
<222> (1)...(300)

<400> 12
atg gca gag atg aag acc gat gcc gct acc ctc gcg cag gag gca ggt 48
Met Ala Glu Met Lys Thr Asp Ala Ala Thr Leu Ala Gln Glu Ala Gly
 1 5 10 15

aat ttc gag cgg atc tcc ggc gac ctg aaa acc cag atc gac cag gtg 96
Asn Phe Glu Arg Ile Ser Gly Asp Leu Lys Thr Gln Ile Asp Gln Val
 20 25 30

gag tcg acg gca ggt tcg ttg cag ggc cag tgg cgc ggc gcg ggg 144
Glu Ser Thr Ala Gly Ser Leu Gln Gly Gln Trp Arg Gly Ala Ala Gly
 35 40 45

acg gcc gcc cag gcc gcg gtg gtg cgc ttc caa gaa gca gcc aat aag 192
Thr Ala Ala Gln Ala Ala Val Val Arg Phe Gln Glu Ala Ala Asn Lys
 50 55 60

cag aag cag gaa ctc gac gag atc tcg acg aat att cgt cag gcc ggc 240
Gln Lys Gln Glu Leu Asp Glu Ile Ser Thr Asn Ile Arg Gln Ala Gly
 65 70 75 80

gtc caa tac tcg agg gcc gac gag gag cag cag gcg ctg tcc tcg 288
Val Gln Tyr Ser Arg Ala Asp Glu Glu Gln Gln Ala Leu Ser Ser
 85 90 95

caa atg ggc ttc tga 303
Gln Met Gly Phe
 100

<210> 13
<211> 2001
<212> DNA
<213> Mycobacterium tuberculosis

<220>
<221> CDS
<222> (1)...(1998)

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Met Ala Ala Asp Tyr Asp Lys Leu Phe Arg Pro His Glu Gly Met Glu			
1 5 10 15			
gct cc ^g gac gat atg gca g ^c g ^c c ^a g ^c ttc ttc gac ccc agt gct tc ^g			96
Ala Pro Asp Asp Met Ala Ala Gln Pro Phe Phe Asp Pro Ser Ala Ser			
20 25 30			
ttt cc ^g cc ^g gc ^g ccc gca tc ^g gca aac cta cc ^g aag ccc aac ggc c ^a g			144
Phe Pro Pro Ala Pro Ala Ser Ala Asn Leu Pro Lys Pro Asn Gly Gln			
35 40 45			
act cc ^g cc ^c cc ^g ac ^g tcc gac gac ct ^g tc ^g gag gg ^c ttc gt ^g tc ^g gc ^c			192
Thr Pro Pro Pro Thr Ser Asp Asp Leu Ser Glu Arg Phe Val Ser Ala			
50 55 60			
cc ^g cc ^g cc ^g cca ccc cca ccc cca cct cc ^g cct cc ^g cca act cc ^g atg			240
Pro Thr Pro Met			
65 70 75 80			
cc ^g atc gc ^c gca gga gag cc ^g ccc tc ^g cc ^g gaa cc ^g gc ^c gca tct aaa			288
Pro Ile Ala Ala Gly Glu Pro Pro Ser Pro Glu Pro Ala Ala Ser Lys			
85 90 95			
cca ccc aca ccc ccc atg ccc atc gc ^c gga ccc gaa cc ^g gc ^c cca ccc			336
Pro Pro Thr Pro Pro Met Pro Ile Ala Gly Pro Glu Pro Ala Pro Pro			
100 105 110			
aaa cca ccc aca ccc ccc atg ccc atc gc ^c gga ccc gaa cc ^g gc ^c cca			384
Lys Pro Pro Thr Pro Pro Met Pro Ile Ala Gly Pro Glu Pro Ala Pro			
115 120 125			
ccc aaa cca ccc aca ccc cct cc ^g atg ccc atc gc ^c gga ccc gaa cc ^g gc ^c ccc acc			432
Pro Lys Pro Pro Thr Pro Pro Met Pro Ile Ala Gly Pro Ala Pro Thr			
130 135 140			
cca acc gaa tcc cag tt ^g gc ^c ccc ccc aga cca cc ^g aca cca caa ac ^g			480
Pro Thr Glu Ser Gln Leu Ala Pro Pro Arg Pro Pro Thr Pro Gln Thr			
145 150 155 160			
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Pro Thr Gly Ala Pro Gln Gln Pro Glu Ser Pro Ala Pro His Val Pro			
165 170 175			
tc ^g cac ggg cca cat caa ccc cgg cg ^c acc gca cca gca cc ^g ccc tgg			576
Ser His Gly Pro His Gln Pro Arg Arg Thr Ala Pro Ala Pro Pro Trp			
180 185 190			
gca aag atg cca atc ggc gaa ccc cc ^g ccc gct cc ^g tcc aga cc ^g tct			624
Ala Lys Met Pro Ile Gly Glu Pro Pro Pro Ala Pro Ser Arg Pro Ser			
195 200 205			
g ^c tcc cc ^g gc ^c gaa cca cc ^g acc cc ^g cct gc ^c ccc caa cac tcc c ^g a			672
Ala Ser Pro Ala Glu Pro Pro Thr Arg Pro Ala Pro Gln His Ser Arg			
210 215 220			

cgt gcg cgc cggt cac cgc tat cgc aca gac acc gaa cga aac gtc Arg Ala Arg Arg Gly His Arg Tyr Arg Thr Asp Thr Glu Arg Asn Val 225 230 235 240	720
ggg aag gta gca act ggt cca tcc atc cag gcg cggt ctg cgg gca gag Gly Lys Val Ala Thr Gly Pro Ser Ile Gln Ala Arg Leu Arg Ala Glu 245 250 255	768
gaa gca tcc ggc gcg cag ctc gcc ccc gga acg gag ccc tcg cca gcg Glu Ala Ser Gly Ala Gln Leu Ala Pro Gly Thr Glu Pro Ser Pro Ala 260 265 270	816
ccg ttg ggc caa ccg aga tcg tat ctg gct ccg ccc acc cgc ccc gcg Pro Leu Gly Gln Pro Arg Ser Tyr Leu Ala Pro Pro Thr Arg Pro Ala 275 280 285	864
ccg aca gaa cct ccc ccc agc ccc tcg ccg cag cgc aac tcc ggt cggt Pro Thr Glu Pro Pro Pro Ser Pro Ser Pro Gln Arg Asn Ser Gly Arg 290 295 300	912
cgt gcc gag cga cgc gtc cac ccc gat tta gcc gca cat gtc gcg Arg Ala Glu Arg Arg Val His Pro Asp Leu Ala Ala Gln His Ala Ala 305 310 315 320	960
cggt caa cct gat tca att acg gcc gca acc act ggc ggt cgt cgc cgc Ala Gln Pro Asp Ser Ile Thr Ala Ala Thr Thr Gly Gly Arg Arg Arg 325 330 335	1008
aag cgt gca gcg ccg gat ctc gac gcg aca cag aaa tcc tta agg ccg Lys Arg Ala Ala Pro Asp Leu Asp Ala Thr Gln Lys Ser Leu Arg Pro 340 345 350	1056
cggt gcc aag ggg ccg aag gtg aag aag gtg aag ccc cag aaa ccg aag Ala Ala Lys Gly Pro Lys Val Lys Lys Val Lys Pro Gln Lys Pro Lys 355 360 365	1104
gcc acg aag ccg ccc aaa gtg gtg tcg cag cgc ggc tgg cga cat tgg Ala Thr Lys Pro Pro Lys Val Val Ser Gln Arg Gly Trp Arg His Trp 370 375 380	1152
gtg cat gcg ttg acg cga atc aac ctg ggc ctg tca ccc gac gag aag Val His Ala Leu Thr Arg Ile Asn Leu Gly Leu Ser Pro Asp Glu Lys 385 390 395 400	1200
tac gag ctg gac ctg cac gct cga gtc cgc cgc aat ccc cgc ggg tcg Tyr Glu Leu Asp Leu His Ala Arg Val Arg Arg Asn Pro Arg Gly Ser 405 410 415	1248
tat cag atc gcc gtc gtc ggt ctc aaa ggt ggg gct ggc aaa acc acg Tyr Gln Ile Ala Val Val Gly Leu Lys Gly Gly Ala Gly Lys Thr Thr 420 425 430	1296
ctg aca gca gcg ttg ggg tcg acg ttg gct cag gtg cgg gcc gac ccg Leu Thr Ala Ala Leu Gly Ser Thr Leu Ala Gln Val Arg Ala Asp Arg 435 440 445	1344
atc ctg gct cta gac gcg gat cca ggc gcc gga aac ctc gcc gat ccg	1392

Ile Leu Ala Leu Asp Ala Asp Pro Gly Ala Gly Asn Leu Ala Asp Arg			
450	455	460	
gta ggg cga caa tcg ggc gcg acc atc gct gat gtg ctt gca gaa aaa			1440
Val Gly Arg Gln Ser Gly Ala Thr Ile Ala Asp Val Leu Ala Glu Lys			
465	470	475	480
gag ctg tcg cac tac aac gac atc cgc gca cac act agc gtc aat gcg			1488
Glu Leu Ser His Tyr Asn Asp Ile Arg Ala His Thr Ser Val Asn Ala			
485	490	495	
gtc aat ctg gaa gtg ctg ccg gca ccg gaa tac agc tcg gcg cag cgc			1536
Val Asn Leu Glu Val Leu Pro Ala Pro Glu Tyr Ser Ser Ala Gln Arg			
500	505	510	
gcg ctc agc gac gcc gac tgg cat ttc atc gcc gat cct gcg tcg agg			1584
Ala Leu Ser Asp Ala Asp Trp His Phe Ile Ala Asp Pro Ala Ser Arg			
515	520	525	
ttt tac aac ctc gtc ttg gct gat tgt ggg gcc ggc ttc ttc gac ccg			1632
Phe Tyr Asn Leu Val Leu Ala Asp Cys Gly Ala Gly Phe Phe Asp Pro			
530	535	540	
ctg acc cgc ggc gtg ctg tcc acg gtg tcc ggt gtc gtg gtc gtg gca			1680
Leu Thr Arg Gly Val Leu Ser Thr Val Ser Gly Val Val Val Val Ala			
545	550	555	560
agt gtc tca atc gac ggc gca caa cag gcg tcg gtc gcg ttg gac tgg			1728
Ser Val Ser Ile Asp Gly Ala Gln Gln Ala Ser Val Ala Leu Asp Trp			
565	570	575	
ttg cgc aac aac ggt tac caa gat ttg gcg agc cgc gca tgc gtg gtc			1776
Leu Arg Asn Asn Gly Tyr Gln Asp Leu Ala Ser Arg Ala Cys Val Val			
580	585	590	
atc aat cac atc atg ccg gga gaa ccc aat gtc gca gtt aaa gac ctg			1824
Ile Asn His Ile Met Pro Gly Glu Pro Asn Val Ala Val Lys Asp Leu			
595	600	605	
gtg cgg cat ttc gaa cag caa gtt caa ccc ggc cgg gtc gtg gtc atg			1872
Val Arg His Phe Glu Gln Gln Val Gln Pro Gly Arg Val Val Val Met			
610	615	620	
ccg tgg gac agg cac att gcg gcc gga acc gag att tca ctc gac ttg			1920
Pro Trp Asp Arg His Ile Ala Ala Gly Thr Glu Ile Ser Leu Asp Leu			
625	630	635	640
ctc gac cct atc tac aag cgc aag gtc ctc gaa ttg gcc gca gcg cta			1968
Leu Asp Pro Ile Tyr Lys Arg Lys Val Leu Glu Leu Ala Ala Leu			
645	650	655	
tcc gac gat ttc gag agg gct gga cgt cgt tga			2001
Ser Asp Asp Phe Glu Arg Ala Gly Arg Arg			
660	665		

<211> 1536
<212> DNA
<213> *Mycobacterium tuberculosis*

<220>
<221> CDS
<222> (1)...(1533)

<400> 14
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 Leu Ser Ala Pro Ala Val Ala Ala Gly Pro Thr Ala Ala Gly Ala Thr
 1 5 10 15

 gct gcg cgccct gcc acc acc cggtt acg atc ctg acc ggc aga cggtt 96
 Ala Ala Arg Pro Ala Thr Thr Arg Val Thr Ile Leu Thr Gly Arg Arg
 20 25 30

 atg acc gat ttg gta ctg cca gcg gcg gtgtt ccgtt atg gaa act tat att 144
 Met Thr Asp Leu Val Leu Pro Ala Ala Val Pro Met Glu Thr Tyr Ile
 35 40 45

 gac gac acc gtc gcg gtgtt ctt tcc gag gtgtt gaa gac acg ccgtt gct 192
 Asp Asp Thr Val Ala Val Leu Ser Glu Val Leu Glu Asp Thr Pro Ala
 50 55 60

 gat gta ctc ggc ggc ttc gac ttt acc gcg caa ggc gtgtt tgg gct ttc 240
 Asp Val Leu Gly Gly Phe Asp Phe Thr Ala Gln Gly Val Trp Ala Phe
 65 70 75 80

 gct cgt ccc gga tcg ccgtt ctg aag ctc gac cag tca ctc gat gac 288
 Ala Arg Pro Gly Ser Pro Pro Leu Lys Leu Asp Gln Ser Leu Asp Asp
 85 90 95

 gcc ggg gtgtt gtc gac ggg tca ctg ctg act ctg gtgtt tca gtc agt cgc 336
 Ala Gly Val Val Asp Gly Ser Leu Leu Thr Leu Val Ser Val Ser Arg
 100 105 110

 acc gag cgc tac cga ccgtt ttg gtc gag gat gtc atc gac gcg atc gcc 384
 Thr Glu Arg Tyr Arg Pro Leu Val Glu Asp Val Ile Asp Ala Ile Ala
 115 120 125

 gtg ctt gac gag tca cct gag ttc gac cgc acg gca ttg aat cgc ttt 432
 Val Leu Asp Glu Ser Pro Glu Phe Asp Arg Thr Ala Leu Asn Arg Phe
 130 135 140

 gtg ggg gcg gcg atc ccgtt ttg acc gcg ccc gtc atc ggg atg gcg 480
 Val Gly Ala Ala Ile Pro Leu Leu Thr Ala Pro Val Ile Gly Met Ala
 145 150 155 160

 atg cgg gcg tgg tgg gaa act ggg cgt acg ttg tgg tgg ccgtt gtc gcg 528
 Met Arg Ala Trp Trp Glu Thr Gly Arg Ser Leu Trp Trp Pro Leu Ala
 165 170 175

 att ggc atc ctg ggg atc gct gtgtt ctg gta ggc agc ttc gtc gcg aac 576
 Ile Gly Ile Leu Gly Ile Ala Val Leu Val Gly Ser Phe Val Ala Asn
 180 185 190

agg ttc tac cag agc ggc cac ctg gcc gag tgc cta ctg gtc acg acg Arg Phe Tyr Gln Ser Gly His Leu Ala Glu Cys Leu Leu Val Thr Thr 195 200 205	624
tat ctg ctg atc gca acc gcc gca gcg ctg gcc gtg ccg ttg ccg cgc Tyr Leu Leu Ile Ala Thr Ala Ala Leu Ala Val Pro Leu Pro Arg 210 215 220	672
ggg gtc aac tcg ttg ggg gcg cca caa gtt gcc ggc gcc gct acg gcc Gly Val Asn Ser Leu Gly Ala Pro Gln Val Ala Gly Ala Ala Thr Ala 225 230 235 240	720
gtg ctg ttt ttg acc ttg atg acg cgg ggc ggc cct cgg aag cgt cat Val Leu Phe Leu Thr Leu Met Thr Arg Gly Gly Pro Arg Lys Arg His 245 250 255	768
gag ttg gcg tcg ttt gcc gtg atc acc gct atc gcg gtc atc gcg gcc Glu Leu Ala Ser Phe Ala Val Ile Thr Ala Ile Ala Val Ile Ala Ala 260 265 270	816
gcc gct gcc ttc ggc tat gga tac cag gac tgg gtc ccc gcg ggg ggg Ala Ala Ala Phe Gly Tyr Gly Tyr Gln Asp Trp Val Pro Ala Gly Gly 275 280 285	864
atc gca ttc ggg ctg ttc att gtg acg aat gcg gcc aag ctg acc gtc Ile Ala Phe Gly Leu Phe Ile Val Thr Asn Ala Ala Lys Leu Thr Val 290 295 300	912
gcg gtc gcg cg acc gtc ctg ccg ccg att ccg gta ccc ggc gaa acc Ala Val Ala Arg Ile Ala Leu Pro Pro Ile Pro Val Pro Gly Glu Thr 305 310 315 320	960
gtg gac aac gag gag ttg ctc gat ccc gtc gcg acc ccg gag gct acc Val Asp Asn Glu Glu Leu Leu Asp Pro Val Ala Thr Pro Glu Ala Thr 325 330 335	1008
agc gaa gaa acc ccg acc tgg cag gcc atc atc gcg tcg gtg ccc gcg Ser Glu Glu Thr Pro Thr Trp Gln Ala Ile Ile Ala Ser Val Pro Ala 340 345 350	1056
tcc gcg gtc cg acc gag cgc agc aaa ctg gcc aag caa ctt ctg Ser Ala Val Arg Leu Thr Glu Arg Ser Lys Leu Ala Lys Gln Leu Leu 355 360 365	1104
atc gga tac gtc acg tcg ggc acc ctg att ctg gct gcc ggt gcc atc Ile Gly Tyr Val Thr Ser Gly Thr Leu Ile Leu Ala Ala Gly Ala Ile 370 375 380	1152
gcg gtc gtg gtg cgc ggg cac ttc ttt gta cac agc ctg gtg gtc gcg Ala Val Val Val Arg Gly His Phe Phe Val His Ser Leu Val Val Ala 385 390 395 400	1200
ggt ttg atc acg acc gtc tgc gga ttt cgc tcg ccg ctt tac gcc gag Gly Leu Ile Thr Thr Val Cys Gly Phe Arg Ser Arg Leu Tyr Ala Glu 405 410 415	1248
cgc tgg tgt gcg tgg gcg ttg ctg gcg acg gtc gcg att ccg acg	1296

Arg Trp Cys Ala Trp Ala Leu Leu Ala Ala Thr Val Ala Ile Pro Thr				
420	425	430		
ggt ctg acg gcc aaa ctc atc atc tgg tac ccg cac tat gcc tgg ctg				1344
Gly Leu Thr Ala Lys Leu Ile Ile Trp Tyr Pro His Tyr Ala Trp Leu				
435	440	445		
ttg ttg agc gtc tac ctc acg gta gcc ctg gtt gcg ctc gtg gtg gtc				1392
Leu Leu Ser Val Tyr Leu Thr Val Ala Leu Val Ala Leu Val Val Val				
450	455	460		
ggg tcg atg gct cac gtc cgg cgc gtt tca ccg gtc gta aaa cga act				1440
Gly Ser Met Ala His Val Arg Arg Val Ser Pro Val Val Lys Arg Thr				
465	470	475	480	
ctg gaa ttg atc gac ggc gcc atg atc gct gcc atc att ccc atg ctg				1488
Leu Glu Leu Ile Asp Gly Ala Met Ile Ala Ala Ile Ile Pro Met Leu				
485	490	495		
ctg tgg atc acc ggg gtg tac gac acg gtc cgc aat atc cgg ttc				1533
Leu Trp Ile Thr Gly Val Tyr Asp Thr Val Arg Asn Ile Arg Phe				
500	505	510		
tga				1536
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<222> (1)...(840)				
<400> 15				
atg gct gaa ccg ttg gcc gtc gat ccc acc ggc ttg agc gca gcg gcc				48
Met Ala Glu Pro Leu Ala Val Asp Pro Thr Gly Leu Ser Ala Ala Ala				
1	5	10	15	
gcg aaa ttg gcc ggc ctc gtt ttt ccg cag cct ccg gcg ccg atc gcg				96
Ala Lys Leu Ala Gly Leu Val Phe Pro Gln Pro Pro Ala Pro Ile Ala				
20	25	30		
gtc agc gga acg gat tcg gtg gta gca gca atc aac gag acc atg cca				144
Val Ser Gly Thr Asp Ser Val Val Ala Ala Ile Asn Glu Thr Met Pro				
35	40	45		
agc atc gaa tcg ctg gtc agt gac ggg ctg ccc ggc gtg aaa gcc gcc				192
Ser Ile Glu Ser Leu Val Ser Asp Gly Leu Pro Gly Val Lys Ala Ala				
50	55	60		
ctg act cga aca gca tcc aac atg aac gcg gcg gac gtc tat gcg				240
Leu Thr Arg Thr Ala Ser Asn Met Asn Ala Ala Asp Val Tyr Ala				
65	70	75	80	
aag acc gat cag tca ctg gga acc agt ttg agc cag tat gca ttc ggc				288
Lys Thr Asp Gln Ser Leu Gly Thr Ser Leu Ser Gln Tyr Ala Phe Gly				

85	90	95	
tcg tcg ggc gaa ggc ctg gct ggc gtc gcc tcg gtc ggt ggt cag cca Ser Ser Gly Glu Gly Leu Ala Gly Val Ala Ser Val Gly Gly Gln Pro 100	105	110	336
agt cag gct acc cag ctg ctg agc aca ccc gtg tca cag gtc acg acc Ser Gln Ala Thr Gln Leu Leu Ser Thr Pro Val Ser Gln Val Thr Thr 115	120	125	384
cag ctc ggc gag acg gcc gct gag ctg gca ccc cgt gtt gtt gcg acg Gln Leu Gly Glu Thr Ala Ala Glu Leu Ala Pro Arg Val Val Ala Thr 130	135	140	432
gtg ccg caa ctc gtt cag ctg gct ccg cac gcc gtt cag atg tcg caa Val Pro Gln Leu Val Gln Leu Ala Pro His Ala Val Gln Met Ser Gln 145	150	155	480
aac gca tcc ccc atc gct cag acg atc agtcaa acc gcc caa cag gcc Asn Ala Ser Pro Ile Ala Gln Thr Ile Ser Gln Thr Ala Gln Gln Ala 165	170	175	528
gcc cag agc gcg cag ggc agc ggc cca atg ccc gca cag ctt gcc Ala Gln Ser Ala Gln Gly Ser Gly Pro Met Pro Ala Gln Leu Ala 180	185	190	576
agc gct gaa aaa ccg gcc acc gag caa gcg gag ccg gtc cac gaa gtg Ser Ala Glu Lys Pro Ala Thr Glu Gln Ala Glu Pro Val His Glu Val 195	200	205	624
aca aac gac gat cag ggc gac cag ggc gac gtg cag ccg gcc gag gtc Thr Asn Asp Asp Gln Gly Asp Gln Gly Asp Val Gln Pro Ala Glu Val 210	215	220	672
gtt gcc gcg gca cgt gac gaa ggc ggc gca tca ccg ggc cag cag Val Ala Ala Ala Arg Asp Glu Gly Ala Gly Ala Ser Pro Gly Gln Gln 225	230	235	720
ccc ggc ggg ggc gtt ccc gcg caa gcc atg gat acc gga gcc ggt gcc Pro Gly Gly Val Pro Ala Gln Ala Met Asp Thr Gly Ala Gly Ala 245	250	255	768
cgc cca gcg gcg agt ccg ctg gcg gcc ccc gtc gat ccg tcg act ccg Arg Pro Ala Ala Ser Pro Leu Ala Ala Pro Val Asp Pro Ser Thr Pro 260	265	270	816
gca ccc tca aca acc aca acg ttg tag Ala Pro Ser Thr Thr Thr Leu 275	280		843

<210> 16
<211> 2190
<212> DNA
<213> Mycobacterium tuberculosis

<220>

<221> CDS

<222> (1)...(2187)

<400> 16				
atg agt att acc agg ccg acg ggc agc tat gcc aga cag atg ctg gat				48
Met Ser Ile Thr Arg Pro Thr Gly Ser Tyr Ala Arg Gln Met Leu Asp				
1 5 10 15				
ccg ggc ggc tgg gtg gaa gcc gat gaa gac act ttc tat gac cgg gcc				96
Pro Gly Gly Trp Val Glu Ala Asp Glu Asp Thr Phe Tyr Asp Arg Ala				
20 25 30				
cag gaa tat agc cag gtt ttg caa agg gtc acc gat gta ttg gac acc				144
Gln Glu Tyr Ser Gln Val Leu Gln Arg Val Thr Asp Val Leu Asp Thr				
35 40 45				
tgc cgc cag cag aaa ggc cac gtc ttc gaa ggc ggc cta tgg tcc ggc				192
Cys Arg Gln Gln Lys Gly His Val Phe Glu Gly Gly Leu Trp Ser Gly				
50 55 60				
ggc gcc gcc aat gct gcc aac ggc gcc ctg ggt gca aac atc aat caa				240
Gly Ala Ala Asn Ala Ala Asn Gly Ala Leu Gly Ala Asn Ile Asn Gln				
65 70 75 80				
ttg atg acg ctg cag gat tat ctc gcc acg gtg att acc tgg cac agg				288
Leu Met Thr Leu Gln Asp Tyr Leu Ala Thr Val Ile Thr Trp His Arg				
85 90 95				
cat att gcc ggg ttg att gag caa gct aaa tcc gat atc ggc aat aat				336
His Ile Ala Gly Leu Ile Glu Gln Ala Lys Ser Asp Ile Gly Asn Asn				
100 105 110				
gtg gat ggc gct caa cgg gag atc gat atc ctg gag aat gac cct agc				384
Val Asp Gly Ala Gln Arg Glu Ile Asp Ile Leu Glu Asn Asp Pro Ser				
115 120 125				
ctg gat gct gat gag cgc cat acc gcc atc aat tca ttg gtc acg gcg				432
Leu Asp Ala Asp Glu Arg His Thr Ala Ile Asn Ser Leu Val Thr Ala				
130 135 140				
acg cat ggg gcc aat gtc agt ctg gtc gcc gag acc gct gag cgg gtg				480
Thr His Gly Ala Asn Val Ser Leu Val Ala Glu Thr Ala Glu Arg Val				
145 150 155 160				
ctg gaa tcc aag aat tgg aaa cct ccg aag aac gca ctc gag gat ttg				528
Leu Glu Ser Lys Asn Trp Lys Pro Pro Lys Asn Ala Leu Glu Asp Leu				
165 170 175				
ctt cag cag aag tcg ccg cca ccc cca gac gtg cct acc ctg gtc gtg				576
Leu Gln Gln Lys Ser Pro Pro Pro Asp Val Pro Thr Leu Val Val				
180 185 190				
cca tcc ccg ggc aca ccg ggc aca ccg gga acc acc ccg atc acc ccg gga				624
Pro Ser Pro Gly Thr Pro Gly Thr Pro Gly Thr Pro Ile Thr Pro Gly				
195 200 205				
acc ccg atc acc ccg gga acc cca atc aca ccc atc ccg gga gcg ccg				672

Thr Pro Ile Thr Pro Gly Thr Pro Ile Thr Pro Ile Pro Gly Ala Pro			
210	215	220	
gta act ccg atc aca cca acg ccc ggc act ccc gtc acg ccg gtg acc			720
Val Thr Pro Ile Thr Pro Thr Pro Gly Thr Pro Val Thr Pro Val Thr			
225	230	235	240
ccg ggc aag ccg gtc acc ccg gtg acc ccg gtc aaa ccg ggc aca cca			768
Pro Gly Lys Pro Val Thr Pro Val Thr Pro Val Lys Pro Gly Thr Pro			
245	250	255	
ggc gag cca acc ccg atc acg ccg gtc acc ccc ccg gtc gcc ccg gcc			816
Gly Glu Pro Thr Pro Ile Thr Pro Val Thr Pro Pro Val Ala Pro Ala			
260	265	270	
aca ccg gca acc ccg gcc acg ccc gtt acc cca gct ccc gct cca cac			864
Thr Pro Ala Thr Pro Ala Thr Pro Val Thr Pro Ala Pro Ala Pro His			
275	280	285	
ccg cag ccg gct ccg gca ccg gcg cca tcg cct ggg ccc cag ccg gtt			912
Pro Gln Pro Ala Pro Ala Pro Ser Pro Gly Pro Gln Pro Val			
290	295	300	
aca ccg gcc act ccc ggt ccg tct ggt cca gca aca ccg ggc acc cca			960
Thr Pro Ala Thr Pro Gly Pro Ser Gly Pro Ala Thr Pro Gly Thr Pro			
305	310	315	320
ggg ggc gag ccg ccg cac gtc aaa ccc gcg gcg ttg gcg gag caa			1008
Gly Gly Glu Pro Ala Pro His Val Lys Pro Ala Ala Leu Ala Glu Gln			
325	330	335	
cct ggt gtg ccg ggc cag cat gcg ggc ggg acg cag tcg ggg cct			1056
Pro Gly Val Pro Gly Gln His Ala Gly Gly Thr Gln Ser Gly Pro			
340	345	350	
gcc cat gcg gac gaa tcc gcc gcg tcg gtg acg ccg gct gcg gcg tcc			1104
Ala His Ala Asp Glu Ser Ala Ala Ser Val Thr Pro Ala Ala Ala Ser			
355	360	365	
ggt gtc ccg ggc gca ccg gcg gcc gcc gcg ccg agc ggt acc acc gcc			1152
Gly Val Pro Gly Ala Arg Ala Ala Ala Ala Pro Ser Gly Thr Ala			
370	375	380	
gtg gga gcg ggc gcg cgt tcg acg gtg ggt acg gcc gcg gcc tcg ggc			1200
Val Gly Ala Gly Ala Arg Ser Ser Val Gly Thr Ala Ala Ala Ser Gly			
385	390	395	400
gcg ggg tog cat gct gcc act ggg ccg gcg ccg gtg gct acc tcg gac			1248
Ala Gly Ser His Ala Ala Thr Gly Arg Ala Pro Val Ala Thr Ser Asp			
405	410	415	
aag gcg gca ccg agc acg ccg gcg gcc tcg gcg ccg acg gca cct			1296
Lys Ala Ala Ala Pro Ser Thr Arg Ala Ala Ser Ala Arg Thr Ala Pro			
420	425	430	
cct gcc ccg ccg tcg acc gat cac atc gac aaa ccc gat cgc agc			1344
Pro Ala Arg Pro Pro Ser Thr Asp His Ile Asp Lys Pro Asp Arg Ser			

435	440	445	
gag tct gca gat gac ggt acg ccg gtg tcg atg atc ccg gtg tcg gcg Glu Ser Ala Asp Asp Gly Thr Pro Val Ser Met Ile Pro Val Ser Ala	450	455	1392
460			
gct cgg gca cgc gac gcc act gca gct gcc agc gcc cgc cag Ala Arg Ala Ala Arg Asp Ala Ala Thr Ala Ala Ser Ala Arg Gln	465	470	1440
475			480
cgt ggc cgc ggt gat gcg ctg cgg ttg gcg cga cgc atc gcg gcg gcg Arg Gly Arg Gly Asp Ala Leu Arg Leu Ala Arg Arg Ile Ala Ala Ala	485	490	1488
495			
ctc aac gcg tcc gac aac aac gcg ggc gac tac ggg ttc ttc tgg atc Leu Asn Ala Ser Asp Asn Asn Ala Gly Asp Tyr Gly Phe Phe Trp Ile	500	505	1536
510			
acc gcg gtg acc acc gac ggt tcc atc gtc gtg gcc aac agc tat ggg Thr Ala Val Thr Asp Gly Ser Ile Val Val Ala Asn Ser Tyr Gly	515	520	1584
525			
ctg gcc tac ata ccc gac ggg atg gaa ttg ccg aat aag gtg tac ttg Leu Ala Tyr Ile Pro Asp Gly Met Glu Leu Pro Asn Lys Val Tyr Leu	530	535	1632
540			
gcc agc gcg gat cac gca atc ccg gtt gac gaa att gca cgc tgt gcc Ala Ser Ala Asp His Ala Ile Pro Val Asp Glu Ile Ala Arg Cys Ala	545	550	1680
555			560
acc tac ccg gtt ttg gcc gtg caa gcc tgg gcg gct ttc cac gac atg Thr Tyr Pro Val Leu Ala Val Gln Ala Trp Ala Ala Phe His Asp Met	565	570	1728
575			
acg ctg cgg gcg gtg atc ggt acc gcg gag cag ttg gcc agt tcg gat Thr Leu Arg Ala Val Ile Gly Thr Ala Glu Gln Leu Ala Ser Ser Asp	580	585	1776
590			
ccc ggt gtg gcc aag att gtg ctg gag cca gat gac att ccg gag agc Pro Gly Val Ala Lys Ile Val Leu Glu Pro Asp Asp Ile Pro Glu Ser	595	600	1824
605			
ggc aaa atg acg ggc cgg tcg cgg ctg gag gtc gtc gac ccc tcg gcg Gly Lys Met Thr Gly Arg Ser Arg Leu Glu Val Val Asp Pro Ser Ala	610	615	1872
620			
gcg gct cag ctg gcc gac act acc gat cag cgt ttg ctc gac ttg ttg Ala Ala Gln Leu Ala Asp Thr Thr Asp Gln Arg Leu Leu Asp Leu Leu	625	630	1920
635			640
ccg ccg gcg ccg gtg gat gtc aat cca ccg ggc gat gag cgg cac atg Pro Pro Ala Pro Val Asp Val Asn Pro Pro Gly Asp Glu Arg His Met	645	650	1968
655			
ctg tgg ttc gag ctg atg aag ccc atg acc agc acc gct acc ggc cgc Leu Trp Phe Glu Leu Met Lys Pro Met Thr Ser Thr Ala Thr Gly Arg	660	665	2016
670			

gag gcc gct cat ctg cgg gcg ttc cgg gcc tac gct gcc cac tca cag	2064
Glu Ala Ala His Leu Arg Ala Phe Arg Ala Tyr Ala Ala His Ser Gln	
675 680 685	
gag att gcc ctg cac caa gcg cac act gcg act gac gcg gcc gtc cag	2112
Glu Ile Ala Leu His Gln Ala His Thr Ala Thr Asp Ala Ala Val Gln	
690 695 700	
cgt gtg gcc gtc gcg gac tgg ctg tac tgg caa tac gtc acc ggg ttg	2160
Arg Val Ala Val Ala Asp Trp Leu Tyr Trp Gln Tyr Val Thr Gly Leu	
705 710 715 720	
ctc gac cgg gcc ctg gcc gca tgc tga	2190
Leu Asp Arg Ala Leu Ala Ala Cys	
725	